

MEMORY DEVICES, SENSE AMPLIFIERS, AND METHODS OF OPERATION
THEREOF USING VOLTAGE-DEPENDENT CAPACITOR PRE-
AMPLIFICATION

ABSTRACT OF THE DISCLOSURE

A memory device includes a memory cell configured to be coupled to complementary first and second bit lines and a differential amplifier having first and second input terminals and operative to amplify a voltage between the first and second input terminals to produce an output signal. First and second voltage-
5 dependent capacitors are coupled to respective ones of the first and second input terminals, and first and second isolation switches are operative to couple and decouple the first and second bit lines to and from respective ones of the first and second voltage-dependent capacitors. The first and second isolation switches may include respective first and second isolation transistors (e.g., NMOS transistors), and the first
10 and second voltage-dependent capacitors may include respective MOS capacitors.